

RICE UNIVERSITY

Recombined Forces

by

Joshua Hahn


A THESIS SUBMITTED
IN PARTIAL FULFILLMENT OF THE
REQUIREMENTS FOR THE DEGREE

Master of Music

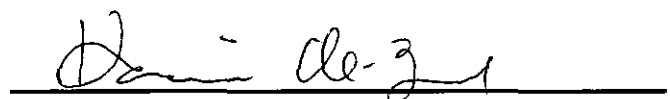
APPROVED, THESIS COMMITTEE



Anthony Brandt, Chair
Associate Professor of Composition and Theory



Shih-Hui Chen
Associate Professor of Composition and Theory



Karim Al-Zand
Associate Professor of Composition and Theory

HOUSTON, TEXAS
April 2013

ABSTRACT

Recombined Forces

by

Joshua Hahn

Recombined Forces, for full orchestra, provides contrast by changing the inner divisions of the whole. These divisions include the gradual separation of the orchestra into different choirs, evolving rhythmic and contrapuntal roles, and the harmonic reordering of one central recurring chord into smaller chords with contrasting characters. The orchestra begins as a whole divided into the traditional choirs, grouped by their physical similarities, and ends as a whole grouped by timbral characteristics. Grouped instruments enter and cutoff together, and play the same contrapuntal lines. Harmonically, the piece progresses through four stages. The recurring total sonority, set class [01234578t], begins as three members of set class [013], becomes three of [016], three of [025], and finally three of [037]. The piece develops by recycling materials rather than by replacing materials, and reveals how subtle changes in organization can lead to vastly different results.

Joshua Hahn

Recombined Forces

for Full Orchestra

Recombined Forces, for full orchestra, provides contrast by changing the inner divisions of the whole. These divisions include the gradual separation of the orchestra into different choirs, evolving rhythmic and contrapuntal roles, and the harmonic reordering of one central recurring chord into smaller chords with contrasting characters. The idea of recombination is both highly musical and conceptually relevant to work in other fields. In music, the idea of grouping and regrouping the forces of the orchestra is an idea that has captivated composers of the past and present. In biology, genetic recombination helps to promote genetic variety in a population. Any scholarly contribution is at least partially a re-organization and re-assembly from previous papers in the form of citations. Lastly, in a consumer-driven society, the idea of re-using rather than throwing out goods and buying new ones is an important concept. The piece reveals how subtle changes in organization can lead to vastly different results.

Instrumentation:

- 3 Flutes
- 3 Oboes
- 3 Clarinets in B \flat , 3 doubling Bass Clarinet
- 3 Bassoons, 3 doubling Contrabassoon


- 4 Horns in F
- 3 Trumpets in C, 3 doubling Flugelhorn in B \flat
- 2 Tenor Trombones
- Bass Trombone
- Tuba

- 3 Percussion (see below)
- Harp





- Strings

Distribution of the 3 Percussion Parts:


Percussion 1

- Crotales (higher set)
- Vibraphone
- 2 Wood Blocks 
- Snare Drum

Percussion 2

- Wood Block 
- 3 Almglocken (any pitches) 
- Suspended Cymbal (small) 
- Opera Gong (small, with quickly ascending tone)
- Medium Gong 

Percussion 3

- Xylophone
- Chimes
- Log Drum 

Duration: 7' 30"

This is a transposing score.

Harp harmonics sound an octave higher than notated.

Brass should use straight mutes when "Con Sord." appears unless another type of mute is specified.

Transposing Score

Recombined Forces

for Full Orchestra

Joshua Hahn

2013

Tranquil
♩ = 60

Flute 1
Flute 2
Flute 3
Oboe 1, 2
Oboe 3
B♭ Clarinet 1, 2
B♭ Clarinet 3
Bassoon 1, 2
Bassoon 3

Tranquil
♩ = 60

F Horn 1, 2
F Horn 3, 4
C Trumpet 1, 2
Flugelhorn
Flugelhorn in B♭
Trombone 1, 2
Bass Trombone
Tuba

Tranquil
♩ = 60 Soft Mallets

2 Wood Blocks
Medium Mallets
1 Wood Block
3 Almglocken
Log Drum

Harp

Tranquil
♩ = 60

Violin 1
Violin 2
Viola
Cello
Double Bass

This page of a musical score for a symphony orchestra, featuring various instruments and their parts across 12 measures. The score includes woodwinds, brass, strings, and percussion.

Woodwinds:

- Fl. 1, 2:** Flute 1 and 2. Part 1 starts with a *p* dynamic, followed by *pp* and *p* dynamics.
- Fl. 3:** Flute 3. Part 1 starts with a *pp* dynamic, followed by *p* and *pp* dynamics.
- Ob. 1, 2:** Oboe 1 and 2. Part 1 starts with a *pp* dynamic, followed by *p* and *pp* dynamics.
- Ob. 3:** Oboe 3. Part 1 starts with a *pp* dynamic, followed by *p* and *pp* dynamics.
- B₃ Cl. 1, 2:** Bass Clarinet 1 and 2. Part 1 starts with a *p* dynamic, followed by *pp* and *mp* dynamics.
- B₃ Cl. 3:** Bass Clarinet 3. Part 1 starts with a *p* dynamic, followed by *pp* and *mp* dynamics.
- Bsn. 1, 2:** Bassoon 1 and 2. Part 1 starts with a *pp* dynamic, followed by *p* and *pp* dynamics.
- Bsn. 3:** Bassoon 3. Part 1 starts with a *pp* dynamic, followed by *p* and *pp* dynamics.

Brass:

- Hn. 1, 2:** Horn 1 and 2. Part 1 starts with a *pp* dynamic, followed by *mp* and *p* dynamics.
- Hn. 3, 4:** Horn 3 and 4. Part 1 starts with a *pp* dynamic, followed by *mp* and *p* dynamics.
- C Tpt. 1, 2:** Cornet 1 and 2. Part 1 starts with a *pp* dynamic, followed by *p* and *pp* dynamics.
- Flghn.:** Flugelhorn. Part 1 starts with a *pp* dynamic, followed by *p* and *pp* dynamics.
- Tbn. 1, 2:** Trombone 1 and 2. Part 1 starts with a *pp* dynamic, followed by *p* and *pp* dynamics.
- Tbn. 3:** Trombone 3. Part 1 starts with a *pp* dynamic, followed by *p* and *pp* dynamics.
- Tba.:** Tuba. Part 1 starts with a *pp* dynamic, followed by *p* and *pp* dynamics.

Strings and Percussion:

- W. Bl.:** Wood Block. Part 1 starts with a *mp* dynamic, followed by *pp* and *p* dynamics.
- W. Bl. Alm.:** Wood Block, Almond. Part 1 starts with a *mp* dynamic, followed by *pp* and *p* dynamics.
- Lg. Dr.:** Large Drum. Part 1 starts with a *mp* dynamic, followed by *pp* and *p* dynamics.
- Hp.:** Harp. Part 1 starts with a *pp* dynamic, followed by *p* and *pp* dynamics.
- VI. 1:** Violin 1. Part 1 starts with a *pp* dynamic, followed by *mp* and *p* dynamics.
- Vln. 2:** Violin 2. Part 1 starts with a *p* dynamic, followed by *pp* and *p* dynamics.
- Va.:** Viola. Part 1 starts with a *pp* dynamic, followed by *p* and *pp* dynamics.
- Vc.:** Violoncello. Part 1 starts with a *pp* dynamic, followed by *p* and *pp* dynamics.
- Db.:** Double Bass. Part 1 starts with a *pp* dynamic, followed by *p* and *pp* dynamics.

The score includes various musical notations such as dynamics (*p*, *pp*, *mp*, *f*), articulation marks (accents, slurs), and performance instructions (e.g., "To Bowed Vibraphone", "To Bowed Crotales").

Recombined Forces

5

This page of the musical score is for a symphony, featuring a variety of instruments. The woodwind section includes Flutes 1 & 2, Flute 3, Oboes 1 & 2, Oboe 3, Bass Clarinets 1, 2, & 3, Bassoon 1 & 2, and Bassoon 3. The brass section includes Horns 1 & 2, Horns 3 & 4, C Trumpets 1 & 2, Flg. Hn., Trombones 1 & 2, Trombone 3, and Tuba. The percussion section includes Crt. (Crotales), W. Bl. Alm. (Wood Block/Alm.), Lg. Dr. (Large Drum), Hp. (Harp), Vl. 1 (Violin 1), Vln. 2 (Violin 2), Va. (Viola), Vc. (Violoncello), and Db. (Double Bass). The score includes dynamic markings such as *pp*, *p*, *mp*, *f*, and *fp*, as well as articulation and performance instructions like "a. 2", "1.", "2. Con sord.", "Senza sord.", "Bowed Crotales", "To C Trumpet", "To Snare Drum Wooden Sticks", "arco", and "pizz.". The page number 22 is visible in the top left corner.

Vivacious, Effervescent

A ♩ = 108

A Vivacious, Effervescent

$\bullet = 108$

A Vivacious, Effervescent

♩ = 108

Snare Drum
Wooden Sticks

Vivacious, Effervescent ♩ = 108

Tutti

Recombined Forces

7

[illegible]

100

Martial

Fl. 1, 2

Fl. 3

Ob. 1, 2

Ob. 3

B₃ Cl. 1, 2

B₃ Cl. 3

Bsn. 1, 2

Bsn. 3

Martial

Hn. 1, 2

Hn. 3, 4

C Tpt. 1, 2

C Tpt. 3

Tbn. 1, 2

Tbn. 3

Tba.

Martial

Vib.

W. Bl.

Alm.

Chm.

Hp.

Martial

Vl. 1

Vl. 2

Va.

Vc.

Db.

The image shows a page of a musical score for a symphony orchestra. The score is written in 2/4 time and includes dynamic markings such as *ff*, *f*, and *p*. The instruments listed include Flutes (Fl. 1, 2, 3), Oboes (Ob. 1, 2, 3), Bassoons (Bsn. 1, 2, 3), Horns (Hn. 1, 2, 3, 4), Trumpets (C Tpt. 1, 2, 3), Trombones (Tbn. 1, 2, 3), Tuba (Tba.), Vibraphone (Vib.), Woodwinds (W. Bl. Alm., Chm.), Harp (Hp.), Violins (Vln. 1, 2), Viola (Va.), Violoncello (Vc.), and Double Bass (Db.). The score is marked with "Clamorous" and "a. 2".

[illegible]

66

(3 + 2) a. 2 (3 + 2)

Fl. 1, 2

Fl. 3

Ob. 1, 2

Ob. 3

B \flat Cl. 1, 2

B \flat Cl. 3

Bsn. 1, 2

Bsn. 3

Hn. 1, 2

Hn. 3, 4

C Tpt. 1, 2

C Tpt. 3

Tbn. 1, 2

Tbn. 3

Tba.

Vib.

W. Bl. Alm.

Chm.

Hp.

VI. 1

Vln. 2

Va.

Vc.

Db.

ffz p

ff

ffz

p

[illegible]

Recombined Forces

13

[illegible]

[illegible]

Recombined Forces

[illegible]

This page of the musical score is for a symphony, featuring a variety of instruments. The score is written in 4/4 time and includes dynamic markings such as *Clamorous*, *ff* (fortissimo), *sf* (sforzando), and *f* (forte). The instruments listed on the left include Flutes (Fl. 1, 2; Fl. 3), Oboes (Ob. 1, 2; Ob. 3), Bass Clarinets (B₃ Cl. 1, 2; B₃ Cl. 3), Bassoon (Bsn. 1, 2), Contrabassoon (C. Bn.), Horns (Hn. 1, 2; Hn. 3, 4), Trumpets (C Tpt. 1, 2; C Tpt. 3), Trombones (Tbn. 1, 2; Tbn. 3), Tuba (Tba.), Vibraphone (Vib.), Suspended Cymbal (Sus. Cym.), Gong (Sm. Gg.), Mediated Gong (Med. Gg.), Chimes (Chm.), Harp (Hp.), Violins (Vl. 1; Vl. 2), Viola (Va.), Violoncello (Vc.), and Double Bass (Db.). The score includes various musical notations such as notes, rests, and dynamic markings. The page is numbered 1 in the top left corner.

132 (3 + 2) a. 2 (3 + 2)

Fl. 1, 2

Fl. 3

Ob. 1, 2

Ob. 3

B♭ Cl. 1, 2

B♭ Cl. 3

Bsn. 1, 2

To Bassoon

Bsn. 3

Hn. 1, 2

Hn. 3, 4

C Tpt. 1, 2

C Tpt. 3

Tbn. 1, 2

Tbn. 3

Tba.

Vib.

Sus. Cym.

Sm. Gg.

Med. Gg.

Chm.

Hp.

VI. 1

VI. 2

Va.

Vc.

Db.

137

Fl. 1, 2

Fl. 3

Ob. 1, 2

Ob. 3

B \flat Cl. 1, 2

B \flat Cl. 3

Bsn. 1, 2

Bsn. 3

Hn. 1, 2

Hn. 3, 4

C Tpt. 1, 2

C Tpt. 3

Tbn. 1, 2

Tbn. 3

Tba.

Vib.

Sus. Cym.
Sm. Gg.
Med. Gg.

Chm.

Hp.

VI. 1

Vln. 2

Va.

Vc.

Db.

J Powerful, Vibrant

J Powerful, Vibrant

J Powerful, Vibrant

To Xylophone
Hard Mallets

Xylophone

non-div.

non-div.

non-div.

Recombined Forces

21

142

Fl. 1, 2

Fl. 3

Ob. 1, 2

Ob. 3

B₃ Cl. 1, 2

B₃ Cl. 3

Bsn. 1, 2

Bsn. 3

Hn. 1, 2

Hn. 3, 4

C Tpt. 1, 2

C Tpt. 3

Tbn. 1, 2

Tbn. 3

Tba.

Vib.

Sus. Cym.

Sm. Gg.

Med. Gg.

Xyl.

Hp.

VI. 1

Vln. 2

Va.

Vc.

Db.

1.

2.

ff

f

non-div.

To Wood Block
Soft Mallets

8va

153

Fl. 1, 2

Fl. 3

Ob. 1, 2

Ob. 3

B \flat Cl. 1, 2

B \flat Cl. 3

Bsn. 1, 2

Bsn. 3

Hn. 1, 2

Hn. 3, 4

C Tpt. 1

C Tpt. 2

C Tpt. 3

Tbn. 1, 2

Tbn. 3

VI. 1

Vln. 2

Va.

Vc.

Db.

158

Fl. 1, 2

Fl. 3

Ob. 1, 2

Ob. 3

B \flat Cl. 1, 2

B \flat Cl. 3

Bsn. 1, 2

Bsn. 3

Hn. 1, 2

Hn. 3, 4

C Tpt. 1, 2

Flghn.

Tbn. 1, 2

Tbn. 3

Tba.

VI. 1

Vln. 2

Va.

Vc.

Db.

Recombined Forces

25

[illegible]

This page of a musical score is for a symphony, featuring a variety of instruments. The score is divided into three systems, each beginning with a rehearsal mark 'L' and the tempo marking 'Tranquil' with a quarter note equal to 60 beats per minute.

System 1 (Flutes, Oboes, Clarinets, Bassoons):

- Flutes (Fl. 1, 2, 3):** Fl. 1 and 2 have dynamic markings of *pp* and *p*. Fl. 3 has a *p* marking.
- Oboes (Ob. 1, 2, 3):** Ob. 1 and 2 have *pp* and *p* markings. Ob. 3 has a *p* marking.
- Clarinets (B♭ Cl. 1, 2):** B♭ Cl. 1 has *pp* and *p* markings. B♭ Cl. 2 has *pp* and *p* markings.
- Bassoons (B. Cl., Bsn. 1, 2, C. Bn.):** B. Cl. has *pp* and *p* markings. Bsn. 1 and 2 have *pp* and *p* markings. C. Bn. has a *p* marking.

System 2 (Horns, Trumpets, Tuba):

- Horns (Hn. 1, 2, 3, 4):** Hn. 1 and 2 have *pp* and *p* markings. Hn. 3 and 4 have *pp* and *p* markings.
- Trumpets (C Tpt. 1, 2, Tbn. 1, 2, 3):** C Tpt. 1 and 2 have *pp* and *p* markings. Tbn. 1 and 2 have *pp* and *p* markings. Tbn. 3 has a *p* marking.
- Tuba (Tba.):** Tba. has a *p* marking.

System 3 (Harp, Violins, Viola, Violoncello, Double Bass):

- Harp (Hp.):** Hp. has a *p* marking.
- Violins (Vln. 1, 2):** Vln. 1 has *pp* and *p* markings. Vln. 2 has *pp* and *p* markings.
- Viola (Va.):** Va. has *pp* and *p* markings.
- Violoncello (Vc.):** Vc. has *pp* and *p* markings.
- Double Bass (Db.):** Db. has *pp* and *p* markings.

The score includes various performance instructions such as 'Tranquil', 'legatissimo', 'Con sord.', 'Flugelhorn', 'solo dolce', 'Sul tasto', 'Con sord.', 'Senza sord.', 'accelerate to bisbigliando', and 'non-div.'. Dynamic markings include *pp* (pianissimo), *p* (piano), and *f* (forte).